Etiological Factors for Epithelial Atypia in Chronic Rhinosinusitis with Nasal Polyps

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Aim: Chronic rhinosinusitis with nasal polyps (CRSwNP) or nasal polyposis (NP) is characterized by polypoid outgrowths of chronically inflamed respiratory mucosa. Cellular atypia of stromal fibroblasts as a result of increased intercellular fluid pressure is a well-known histological characteristic of CRSwNP. However, the presence of squamous metaplasia and dysplasia on the mucosal surface of nasal polyps (NPs) is not well investigated. The aim of this study was to evaluate the presence of epithelial atypia in ethmoidal NPs and to find possible etiological factors for this histological feature.

Methods: This retrospective analysis of prospectively collected data involved 212 patients with NP undergoing endoscopic ethmoidectomy. To evaluate possible etiological factors for epithelial atypia, the patients in whom we histopathologically detected the presence of epithelial atypia were compared with patients with 'normal' NPs in accordance with the following characteristics as found in the patients' medical data: gender, age, atopic status, sensitivity to non-steroid anti-inflammatory drugs (NSAIDs), cigarette smoking, and occupational exposure to different noxious factors.

Results: Epithelial atypia were detected in 44 (20.7%) NP patients, whereas features of 'true' dysplasia were found in only one patient (0.5%). The presence of atypia was more frequent in males than in females (p=0.008). The association with non-steroid anti-inflammatory drug (NSAID)-exacerbated respiratory disease (N-ERD) and with long-term occupational exposure to different noxious chemicals, especially in workers exposed to salts of heavy metals, was more frequent in NP patients with epithelial atypia than in patients without atypia (p=0.023; p=0.006), respectively).

Conclusion: Our results suggest epithelial atypia in NPs are associated with NSAID sensitivity and occupational exposure to different noxious chemicals. Although extremely rare, epithelial dysplasia may occasionally be noted in NPs, a fact potentially useful for both rhinologists and pathologists.

Key words: aspirin sensitivity, epithelium, inflammation, nasal polyps, occupational exposure